

AMENDMENTS TO THE CLAIMS

1. (Original) A dispersion compensator, comprising:  
an optical component having an accumulated chromatic dispersion of -1200 ps/nm or more but less than -600 ps/nm at a wavelength of 1.55  $\mu\text{m}$ ; and  
a housing having a volume of 500  $\text{cm}^3$  or less for accommodating said optical component.
2. (Original) A dispersion compensator according to claim 1, wherein the volume V ( $\text{cm}^3$ ) of said housing and the accumulated chromatic dispersion AD (ps/nm) of said optical component satisfy the following relationship:  
$$V \leq -0.31 \times \text{AD} + 120.$$
3. (Original) An dispersion compensator according to claim 1, further having, as a characteristic at the wavelength of 1.55  $\mu\text{m}$ , an insertion loss of 5.9 dB or less.
4. (Original) A dispersion compensator according to claim 1, wherein the insertion loss IL (dB) at the wavelength of 1.55  $\mu\text{m}$  and the accumulated chromatic dispersion AD (ps/nm) of said optical component satisfy the following relationship:  
$$\text{IL} \leq -0.0033 \times \text{AD} + 1.9.$$
5. (Original) A dispersion compensator according to claim 1, wherein said optical component includes an optical fiber comprising:

a center core part extending along a predetermined axis and having a predetermined maximum refractive index;

a first cladding part, provided on an outer periphery of said center core part, having a refractive index lower than that of said center core part;

a second cladding part, provided on an outer periphery of said first cladding part, having a refractive index higher than that of said first cladding part; and

a third cladding part, provided on an outer periphery of said second cladding part, having a refractive index lower than that of said second cladding part.

6. (Original) A dispersion compensator according to claim 5, further having, as a characteristic at the wavelength of 1.55  $\mu\text{m}$ , a bending loss of 0.1 dB/km or less in a state wound at a diameter of 60 mm.

7. (Currently Amended) A dispersion compensator according to claim 5, wherein said second cladding part has a relative refractive index difference of 0.2% to 0.9% with reference to the refractive index of said third cladding part; and

wherein said optical fiber satisfies the following conditions:

$$0.19 \leq a/c < 0.4, \text{ and}$$

$$0.4 \leq b/c \leq 0.8$$

where a is the outer radius of said center core region, b is the outer radius of said first cladding part, and c is the outer radius of said second cladding part.

8. (Original) A dispersion compensator, comprising:

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an optical component having an accumulated chromatic dispersion of -600 ps/nm or more but less than -0 ps/nm at a wavelength of 1.55  $\mu\text{m}$ ; and

a housing having a volume of 310  $\text{cm}^3$  or less for accommodating said optical component.

9. (Original) A dispersion compensator according to claim 8, wherein the volume  $V$  ( $\text{cm}^3$ ) of said housing and the accumulated chromatic dispersion AD (ps/nm) of said optical component satisfy the following relationship:

$$V \leq -0.31 \times \text{AD} + 120.$$

10. (Original) An dispersion compensator according to claim 8, further having, as a characteristic at the wavelength of 1.55  $\mu\text{m}$ , an insertion loss of 3.9 dB or less.

11. (Original) A dispersion compensator according to claim 8, wherein the insertion loss IL (dB) at the wavelength of 1.55  $\mu\text{m}$  and the accumulated chromatic dispersion AD (ps/nm) of said optical component satisfy the following relationship:

$$\text{IL} \leq -0.0033 \times \text{AD} + 1.9.$$

12. (Original) A dispersion compensator according to claim 8, wherein said optical component includes an optical fiber comprising:

a center core part extending along a predetermined axis and having a predetermined maximum refractive index;

a first cladding part, provided on an outer periphery of said center core part, having a refractive index lower than that of said center core part;

a second cladding part, provided on an outer periphery of said first cladding part, having a refractive index higher than that of said first cladding part; and

a third cladding part, provided on an outer periphery of said second cladding part, having a refractive index lower than that of said second cladding part.

13. (Original) A dispersion compensator according to claim 12, further having, as a characteristic at the wavelength of 1.55  $\mu\text{m}$ , a bending loss of 0.1 dB/km or less in a state wound at a diameter of 60 mm.

14. (Currently Amended) A dispersion compensator according to claim 12, wherein said second cladding part has a relative refractive index difference of 0.2% to 0.9% with reference to the refractive index of said third cladding part; and

wherein said optical fiber satisfies the following conditions:

$$0.19 \leq a/c < 0.4, \text{ and}$$

$$0.4 \leq b/c \leq 0.8$$

where a is the outer radius of said center core region, b is the outer radius of said first cladding part, and c is the outer radius of said second cladding part.

15. (Original) A dispersion compensator, comprising:

an optical component having an accumulated chromatic dispersion of -300 ps/nm or more but less than -0 ps/nm at a wavelength of 1.55  $\mu\text{m}$ ; and

a housing having a volume of  $260 \text{ cm}^3$  or less for accommodating said optical component.

16. (Original) A dispersion compensator according to claim 15, wherein the volume  $V \text{ (cm}^3\text{)}$  of said housing and the accumulated chromatic dispersion  $AD \text{ (ps/nm)}$  of said optical component satisfy the following relationship:

$$V \leq -0.31 \times AD + 120.$$

17. (Original) An dispersion compensator according to claim 15, further having, as a characteristic at the wavelength of  $1.55 \mu\text{m}$ , an insertion loss of 2.9 dB or less.

18. (Original) A dispersion compensator according to claim 15, wherein the insertion loss  $IL \text{ (dB)}$  at the wavelength of  $1.55 \mu\text{m}$  and the accumulated chromatic dispersion  $AD \text{ (ps/nm)}$  of said optical component satisfy the following relationship:

$$IL \leq -0.0033 \times AD + 1.9.$$

19. (Original) A dispersion compensator according to claim 15, wherein said optical component includes an optical fiber comprising:

a center core part extending along a predetermined axis and having a predetermined maximum refractive index;

a first cladding part, provided on an outer periphery of said center core part, having a refractive index lower than that of said center core part;

a second cladding part, provided on an outer periphery of said first cladding part, having a refractive index higher than that of said first cladding part; and

a third cladding part, provided on an outer periphery of said second cladding part, having a refractive index lower than that of said second cladding part.

20. (Original) A dispersion compensator according to claim 19, further having, as a characteristic at the wavelength of 1.55  $\mu\text{m}$ , a bending loss of 0.1 dB/km or less in a state wound at a diameter of 60 mm.

21. (Currently Amended) A dispersion compensator according to claim 19, wherein said second cladding part has a relative refractive index difference of 0.2% to 0.9% with reference to the refractive index of said third cladding part; and

wherein said optical fiber satisfies the following conditions:

$$0.19 \leq a/c < 0.4, \text{ and}$$

$$0.4 \leq b/c \leq 0.8$$

where a is the outer radius of said center core region, b is the outer radius of said first cladding part, and c is the outer radius of said second cladding part.

22. (Original) A dispersion compensator, comprising:

an optical component having an accumulated chromatic dispersion of -180 ps/nm or more but less than -0 ps/nm at a wavelength of 1.55  $\mu\text{m}$ ; and

a housing having a volume of 200  $\text{cm}^3$  or less for accommodating said optical component.

23. (Original) A dispersion compensator according to claim 22, wherein the volume  $V$  ( $\text{cm}^3$ ) of said housing and the accumulated chromatic dispersion  $AD$  ( $\text{ps/nm}$ ) of said optical component satisfy the following relationship:

$$V \leq -0.31 \times AD + 120.$$

24. (Original) An dispersion compensator according to claim 22, further having, as a characteristic at the wavelength of  $1.55 \mu\text{m}$ , an insertion loss of 2.5 dB or less.

25. (Original) A dispersion compensator according to claim 22, wherein the insertion loss  $IL$  (dB) at the wavelength of  $1.55 \mu\text{m}$  and the accumulated chromatic dispersion  $AD$  ( $\text{ps/nm}$ ) of said optical component satisfy the following relationship:

$$IL \leq -0.0033 \times AD + 1.9.$$

26. (Original) A dispersion compensator according to claim 22, wherein said optical component includes an optical fiber comprising:

- a center core part extending along a predetermined axis and having a predetermined maximum refractive index;

- a first cladding part, provided on an outer periphery of said center core part, having a refractive index lower than that of said center core part;

- a second cladding part, provided on an outer periphery of said first cladding part, having a refractive index higher than that of said first cladding part; and

a third cladding part, provided on an outer periphery of said second cladding part, having a refractive index lower than that of said second cladding part.

27. (Original) A dispersion compensator according to claim 26, further having, as a characteristic at the wavelength of 1.55  $\mu\text{m}$ , a bending loss of 0.1 dB/km or less in a state wound at a diameter of 60 mm.

28. (Currently Amended) A dispersion compensator according to claim 26, wherein said second cladding part has a relative refractive index difference of 0.2% to 0.9% with reference to the refractive index of said third cladding part; and

wherein said optical fiber satisfies the following conditions:

$$0.19 \leq a/c < 0.4, \text{ and}$$

$$0.4 \leq b/c \leq 0.8$$

where a is the outer radius of said center core region, b is the outer radius of said first cladding part, and c is the outer radius of said second cladding part.

29. (Original) A dispersion compensator, comprising:

an optical component having a predetermined accumulated chromatic dispersion at a wavelength of 1.55  $\mu\text{m}$ ; and

a housing for accommodating said optical component,

wherein the volume V ( $\text{cm}^3$ ) of said housing and the accumulated chromatic dispersion AD (ps/nm) of said optical component satisfy the following relationship:

$$V \leq -0.31 \times \text{AD} + 120.$$



30. (Original) A dispersion compensator according to claim 29, wherein the insertion loss IL (dB) at the wavelength of 1.55  $\mu\text{m}$  and the accumulated chromatic dispersion AD (ps/nm) of said optical component satisfy the following relationship:

$$IL \leq -0.0033 \times AD + 1.9.$$

31. (Original) A dispersion compensator according to claim 29, wherein said optical component includes an optical fiber comprising:

a center core part extending along a predetermined axis and having a predetermined maximum refractive index;

a first cladding part, provided on an outer periphery of said center core part, having a refractive index lower than that of said center core part;

a second cladding part, provided on an outer periphery of said first cladding part, having a refractive index higher than that of said first cladding part; and

a third cladding part, provided on an outer periphery of said second cladding part, having a refractive index lower than that of said second cladding part.

32. (Original) A dispersion compensator according to claim 31, further having, as a characteristic at the wavelength of 1.55  $\mu\text{m}$ , a bending loss of 0.1 dB/km or less in a state wound at a diameter of 60 mm.

33. (Currently Amended) A dispersion compensator according to claim 29, wherein said

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second cladding part has a relative refractive index difference of 0.2% to 0.9% with reference to the refractive index of said third cladding part; and

wherein said optical fiber satisfies the following conditions:

$$0.19 \leq a/c < 0.4, \text{ and}$$

$$0.4 \leq b/c \leq 0.8$$

where a is the outer radius of said center core region, b is the outer radius of said first cladding part, and c is the outer radius of said second cladding part.